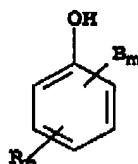


coupler are developed, thereby forming a developed image within each of the units, in the presence of a thermal solvent for promoting development in a dry or substantially dry process, which thermal solvent has a melting point of at least 80°C, comprises a phenolic ring and has the following formula:



wherein the substituent B is independently selected from a substituent where an oxygen, carbon, nitrogen phosphorus or sulfur atom is linked to the phenolic ring as part of an ester, amido, ether, aminosulfonyl, sulfamoyl, carbonyl, acyl or sulfonyl group;

m is 0 to 4; and

wherein the substituent R is independently selected from a substituted or unsubstituted alkyl, cycloalkyl, aryl, alkylaryl, or forms a ring with another substituent on the ring;

n is 0 to 4; and

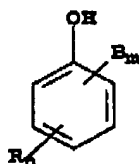
wherein m+n is 1 to 5; and

(b) scanning said developed image in each of the units of the imagewise exposed and developed film to form a first electronic image representation of said imagewise exposure based.

46. A method of image formation comprising the following steps:

(a) developing an imagewise exposed photothermographic element that is a photographic film comprising at least three light-sensitive units which have their individual sensitivities in different wavelength regions, each of the units comprising at least one light-sensitive silver-halide emulsion, binder, and dye-providing coupler, and a blocked developer which blocked developer and coupler are developed, thereby forming a developed image within each of the units, in the presence of a thermal solvent for promoting development in a dry or

substantially dry process, which thermal solvent has a melting point of at least 80°C, comprises a phenolic ring and has the following formula:



(I)

wherein the substituent B is independently selected from a substituent where an oxygen, carbon, nitrogen, phosphorus or sulfur atom is linked to the phenolic ring as part of a ketone, aldehyde, ester, amido, carbamate, ether, aminosulfonyl, sulfamoyl, sulfonyl, amine, phosphine, or aromatic heterocyclic group;

m is 0 to 4; and

wherein the substituent R is independently selected from a substituted or unsubstituted alkyl, cycloalkyl, aryl, alkylaryl, or forms a ring with another substituent on the ring;

n is 0 to 4; and

wherein m+n is 1 to 5; and

(b) scanning said developed image in each of the units of the imagewise exposed and developed film to form a first electronic image representation of said imagewise exposure based.

47. The method of claim 45 wherein B is selected from the group consisting of $-C(=O)NHR^2$, $-NHC(=O)R^2$, $-NHSO_2R^2$, $-COR^2$, $-SO_2NHR^2$, and $-SO_2R^2$ wherein R^2 is substituted or unsubstituted alkyl, cycloalkyl, aryl, alkylaryl, heterocyclic group and can optionally comprise a phenolic hydroxyl group.

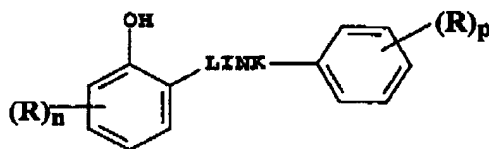
48. The method of claim 46 wherein B is selected from the group consisting of $-C(=O)NHR^2$, $-NHC(=O)R^2$, $-NHSO_2R^2$, $-SO_2NHR^2$, $-SO_2R^2$, $-C(=O)R^2$, $-C(=O)OR^2$, and $-OR^2$, wherein R^2 is substituted or unsubstituted alkyl, cycloalkyl, aryl, alkylaryl, heterocyclic group and can optionally comprise a phenolic hydroxyl group.

49. The method of claim 45 wherein the melting point is between 100 and 250°C.

50. The method of claim 46 wherein when m is 0, n is at least 1 and there is a second phenolic group on an R substituent.

51. The method of claim 47 wherein n is 1 and R² is a substituted or unsubstituted phenyl substituent.

52. The method of claim 46 wherein the thermal solvent has the following structure:



wherein LINK is selected from the group consisting of -C(=O)NH-, -NHC(=O)-, -NH₂SO₂-, -C(=O)-, -C(=O)O-, -O(R³)-, -SO₂NH-, and -SO₂-; where R³ is an alkyl group and R and n is as defined above; and p is 0 to 4.

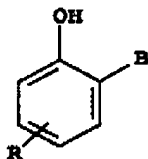
53. The method of claim 52 wherein R is independently selected from substituted or unsubstituted C1 to C10 alkyl group.

54. The method of claim 46 wherein n+p is 1 and R is a C1 to C6 alkyl group.

55. The method of claim 45 wherein the thermal solvent is 2-hydroxybenzamide or a derivative thereof.

56. The method of claim 45 in which the thermal solvent is present in the amount of 0.01 times to 0.5 times the amount by weight of coated gelatin per square meter.

57. The method of claim 45, comprising a radiation sensitive silver halide, and a thermal solvent represented by the following structure

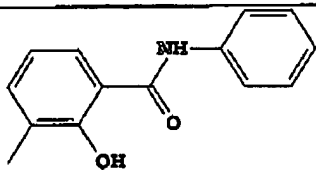
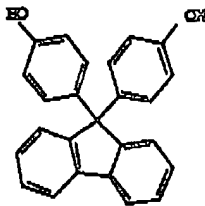

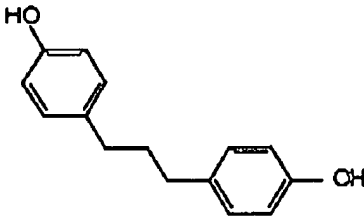
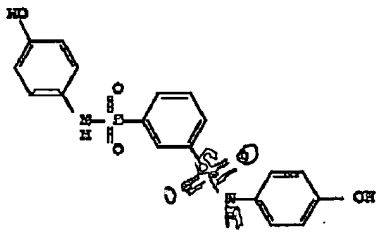


wherein B and R are as described in claim 45.

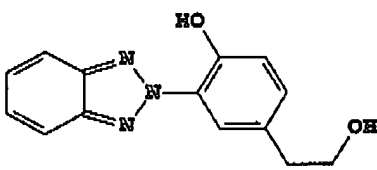
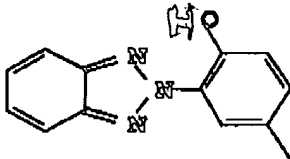
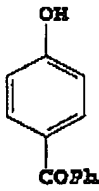
58. The method of claim 47 wherein the thermal solvent is selected from the group consisting of:

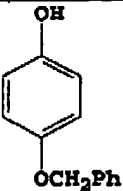
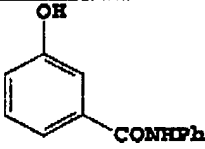
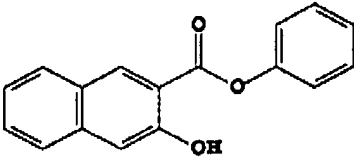
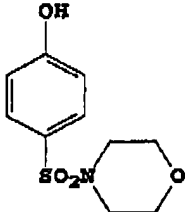
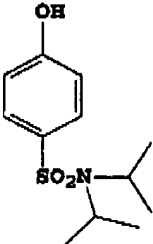
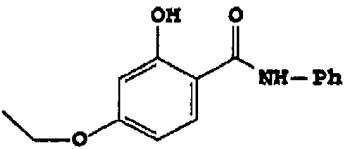
<chem>Oc1ccccc1C(=O)Nc2ccccc2</chem>	<chem>Oc1cccc(c1)C(=O)Nc2ccccc2</chem>
<chem>Oc1ccccc1C(=O)Nc2ccc(Oc3ccc(C(C)(C)C)cc3)cc2</chem>	<chem>Oc1ccc2ccccc2c1C(=O)Nc3ccccc3</chem>
<chem>Oc1ccc(cc1C(=O)Nc2ccccc2)-c3ccccc3</chem>	<chem>Cc1cc(O)c(cc1C(=O)Nc2ccccc2)C</chem>

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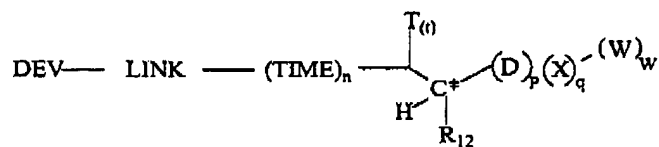
			
			
and			

59. The method of claim 46 wherein the thermal solvent is selected from the group consisting of:

			
			
			
and			

60. The method according to claim 45, wherein the blocked developer is a compound represented by the following structure:



wherein:

DEV is a developing agent;

LINK is a linking group;

TIME is a timing group;

n is 0, 1, or 2;

t is 0, 1, or 2, and when t is not 2, the necessary number of hydrogens (2-t) are present in the structure;

C* is tetrahedral (sp³ hybridized) carbon;

p is 0 or 1;

q is 0 or 1;

w is 0 or 1;

p + q = 1 and when p is 1, q and w are both 0; when q is 1, then w is 1;

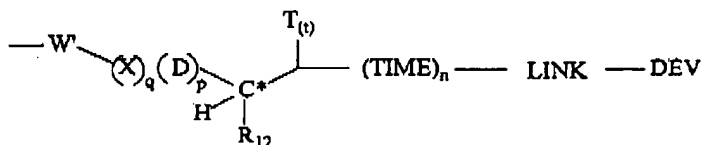
R₁₂ is hydrogen, or a substituted or unsubstituted alkyl, cycloalkyl, aryl or heterocyclic group or R₁₂ can combine with W to form a ring;

T is independently selected from a substituted or unsubstituted (referring to the following T groups) alkyl group, cycloalkyl group, aryl, or heterocyclic group, an inorganic monovalent electron withdrawing group, or an inorganic divalent electron withdrawing group capped with at least one C1 to C10 organic group that is either an R₁₃ or an R₁₃ and R₁₄ group; or T is joined with W or R₁₂ to form a ring; or two T groups can combine to form a ring;

D is a first activating group selected from substituted or unsubstituted (referring to the following D groups) heteroaromatic group or aryl group or monovalent electron withdrawing group, wherein said heteroaromatic group can optionally form a ring with T or R₁₂;

X is a second activating group and is a divalent electron withdrawing group;

W is W' or a group represented by the following structure:



W' is independently selected from a substituted or unsubstituted (referring to the following W' groups) alkyl, cycloalkyl, aryl or heterocyclic group; and wherein W' in combination with T or R₁₂ can form a ring;

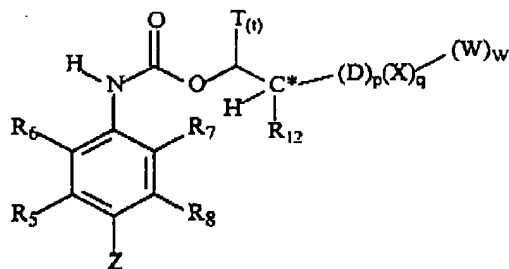
R_{13} , R_{14} , R_{15} , and R_{16} can independently be selected from substituted or unsubstituted alkyl, aryl, or heterocyclic group;

any two members of the following set: R_{12} , T, and either D or W, that are not directly linked may be joined to form a ring, provided that creation of the ring will not interfere with the functioning of a blocking group in the blocked developer;

wherein the T, R_{12} , D, X and W groups are selected such that the blocked developer has a half-life ($t_{1/2}$) ≤ 20 min, and a peak discrimination, at a temperature of at least 60°C , of at least 2.0.

61. The method of claim 45 wherein peak discrimination is 3 to 10 and peak discrimination is at a temperature of 100 to 160°C .

62. A color photothermographic element according to claim 60, wherein the blocked developer is a compound represented by the following structure:

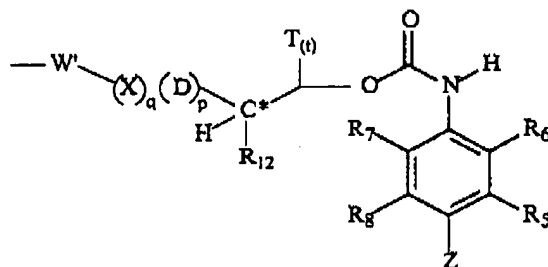


wherein:

Z is OH or NR_2R_3 , where R_2 and R_3 are independently hydrogen or a substituted or unsubstituted alkyl group or R_2 and R_3 are connected to form a ring;

R_5 , R_6 , R_7 , and R_8 are independently hydrogen, halogen, hydroxy, amino, alkoxy, carbonamido, sulfonamido, alkylsulfonamido or alkyl, or R_5 can connect with R_3 or R_6 and/or R_8 can connect to R_2 or R_7 to form a ring;

W is either W' or a group represented by the following structure:



wherein T, t, C*, R₁₂, D, p, X, q, W' and w are as defined above.

63. The method according to claim 60, wherein X is a sulfonyl or a cyano group and Z is NR₂R₃.

64. The method according to claim 45 wherein the photothermographic element contains an imaging layer comprising, in addition to the blocked developer, a light sensitive silver halide emulsion, and a non-light sensitive silver salt oxidizing agent.

65. The method according to claim 45 comprising a mixture of at least two organic silver salts, at least one of which is a non-light sensitive silver salt oxidizing agent.

66. The method according to claim 46, wherein said developing comprises treating said imagewise exposed element at a temperature between about 80°C and about 180°C for a time ranging from about 0.5 to about 60 seconds.

67. The method according to claim 46, wherein said developing comprises treating said imagewise exposed element to a volume of processing solution is between about 0.1 and about 10 times the volume of solution required to fully swell the photographic element.

68. The method according to claim 46, wherein the developing is accompanied by the application of a laminate sheet containing additional processing chemicals.

69. The method according to claim 46, wherein the applied processing solution is a base, acid, or pure water.

70. The method according to claim 46 wherein the image formation comprises the step of digitizing a first electronic image representation formed from an imagewise exposed, developed, and scanned imaging element to form a digital image.

71. The method according to claim 46 wherein image formation comprising the step of modifying a first electronic image representation formed from an imagewise exposed, developed, and scanned imaging element formulated to form a second electronic image representation.

72. The method according to claim 46 comprising storing, transmitting, printing, or displaying an electronic image representation of an image derived from an imagewise exposed, developed, scanned imaging element.

73. The method according to claim 72, wherein printing the electronic image representation is accomplished with one of the following: electrophotography; inkjet; thermal dye sublimation; or CRT or LED printing to sensitized photographic paper.

74. The method according to claim 46 wherein the melt former has a melting point of at least 100°C.

75. The method according to claim 46 wherein the melt former has a melting point of at least 100°C but melts at the temperature of development to obtain image formation. --